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ENVIROMENTAL PERSPECTIVES ON AEROMOBILITY AND THE DEVELOPMENT OF EXPERIENCE SPACES

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Abstract

In recent years a number of small and medium-sized European cities, which have a provincial airport located relatively close to the city invested in making cities to “experience destinations”. Several provincial airports and airlines – especially low-cost airlines – have seen an advantage in this strategy and used it as an essential part of expanding their business base. These “new” experience destinations and low-cost carriers have largely evolved through each other. In several cities around Europe where there had not really been something to be experienced so far, entirely new attractions and adventure opportunities have been created.

However, using air traffic as an important tool in the production of experience is problematic. The threat to the global climate from airplane emissions has become more serious than the threat from emissions of vehicles, which travel at the same distances at surface level. The rapidly expanding air traffic worldwide contributes about 3% of the production of CO₂ to the global climate. One other important consequence of this increase in air transport is that tourism now accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions.

In the paper we will show how aeromobility is used as a core element in the development of new urban strategies of experience and transformation of urban spaces and we will discuss different dilemmas with this strategy for the environment, both at the global and the local level. We will use the city of Billund (Denmark) as an example.

Keywords

Aeromobility, environmental impacts, new urban strategies and experience destination

1. Introduction

In the past few decades, the number of experience opportunities in and around small and medium-sized European cities has exploded. There is a rising demand for experiences in society, and more and more money is spent on leisure, arts and cultural events (Marling et al., 2009). In several European cities, experience now has an increasing influence on urban politics, urban planning and urban designs (Hall, 2000; Kunzmann, 2004; Metz, 2002).

In this paper we will show how aeromobilityⁱ is used as a core element in the development of new urban strategies of experience and transformation of urban spaces. As Whitelegg (1997) points out, the drive to consume large distance, as part of the search for experience, reaches its apogee in global tourism and air travel. Today, flying is a fundamental element in the process of economic and cultural globalization (Graham, 1995); International air travel growth rates have been in the order of 5-6% per year in the period from 1970 to 2000, and the volume of air transport is now five times that in 1970 (Gössling & Peeters, 2007). It is predicted by Airbus, one of the global leaders in airplane production, that air travel will continue to grow with annual rates of 5.3% until 2023 (Airbus, 2004).

Possibilities for experiences and leisure have changed and can be related to the increasing number of cheap air tickets and the number of low price destinations in Europe. In 2006, approximately 140 million passengers were carried by low fares airlines within Europe to more than 280 airports (Low Fares Airline Association, 2007: ii). Air travels do not only extend the possibilities and scale of leisure consumption on an individual level, but it also functions as a tool to construct, transform and brand 'places of experience', which will be illustrated in this paper.

However, using air traffic as an important tool in the production of experience is problematic. Aviation emissions have increased by almost 87% since 1990 and today account for around 3% of total CO₂ emissions in the EU (Bleischwitz et al., 2007: 13). Due to a more aggressive impact of CO₂ emissions in the higher strata of the atmosphere, the threat to the global climate from airplane emissions has become more serious than the threat from emissions of vehicles, which travel at the same distances at surface level (Høyer & Næss, 2001; Lassen, 2005; Gössling & Peeters, 2007).

Tourism accounts for more than 60% of air travel, and it is therefore responsible for an important share of air emissions (Inskip, 2008). The local impact of air transport on the ground is also significant and includes land take for airports, terminals and runways; noise and air pollution from aircrafts; pollution from buildings; air pollution and noise from roads and road transport serving the air transport (Whitelegg, 1997: 86). However, we will not limit ourselves in this paper by solely focusing on environmental problems at the airport. The airport is only one actor involved in the development of Billund into an experience destination. We will also have a look at the other actors (the municipality, Legoland and Lalandia, see section 4), and what they can do to incorporate environmental sustainability into their actions.

This paper explores how aeromobility is used as a core element in the development of new urban strategies of experience and transformation of urban spaces. This will be illustrated by examples from the city of Billund (Denmark). The paper focuses on the complex relations between the urban/regional growth strategies in “experience destinations”, sustainable development and (aero)mobility. Methodologically, the paper is designed as a case study involving qualitative research interviews, literature reviews and statistical material as data collecting techniques. The city of Billund is selected as research object because it is an example of the complex connections between increasing aeromobility and the social, economic and spatial reorganization. The paper argues that the examples from Billund are not just picturing a simple form of causality, where increasing access to air travel creates a new experience destination; but the case study also illustrates the complex impact of the increasing prevalence of air travel on the spatial, social and economic development of the city, and at the same time, how the spatial, social and economic reorganization contributes to the prevalence of air traffic, airports and air spaces. Therefore, the paper also discusses how such new forms of hypermobility (Adams, 2005) which are connected with transformed spaces for leisure and play are a big challenge to politicians and planners on various levels from the local to the global in terms of environmental and climate change problems.

The paper is divided into five sections. In section two, we explore the case of Billund, where the relationship between urban/regional growth strategy and aeromobility has been a major concern. In section three, we discuss the development from mass tourism to individual planning of experience and how this has taken shape in Billund. In section four, we discuss the case of Billund in the light of the notion of urban/regional growth strategies in “experience

destinations”, sustainable development and aeromobility. Finally, in section five the conclusion and perspectives.

2. The Billund case: from industrial area to “destination of experience”

Historically, Billund municipality has been characterized by a high number of industrial jobs and traditional industrial productions, especially bacon factories and the production of toys (home of LEGO). The transformation of the economy and labor market has caused that a high number of industrial jobs recently have been outsourced to less developed countries with lower wages or have been closed down. During the last decades, the municipality has lost a large number of blue collar jobs; 10% of the total numbers of these jobs have disappeared during the last 2-3 years (Director of Billund Business Association, research interview 2007). Due to this development, the city council decided to focus on the experience economy, and consequently they made a strategy for economic development with a starting point in experiences and tourism. The purpose is to create a local labor market where more people would be employed within the tourism sector (Lassen et al., 2009). The municipality of Billund defines experience economy as “all kinds of experiences that generate revenue and thus growth opportunities” (Billund, 2008: 7). The definition of experience economy applied by the municipality of Billund is rather broad; it is experiences in nature, overnight stays, visits to museum, trade, meeting and conferences, concerts, sport events and so on”.

The development of Billund into an experience destination is primarily centered around Legoland, Lalandia Billund and Billund Airport (see figure 1). *Legoland* is an amusement park based on the products from the international toy company LEGO. *Lalandia Billund* is a holiday centre with a large swimming pool (30.000 m²) and all kinds of activities for families. *Billund airport* is the second largest international airport in Denmark where 2.2 million passengers each year travel through (2009); more than 90% of all passengers travel to or from an international destination (Billund airport, 2010a). The airport has domestic flights to Copenhagen and Rønne (Bornholm) and 37 European routes (Billund airport, 2010a).

Together with the municipality and the local business association, Legoland, Lalandia and the airport play a key role in developing Billund into an experience destination. Historically, tourism in Billund was primarily based on transit passengers, who only stopped for a short period of time on their way to other places and day trip tourist visiting Legoland (1.6 – 2 million visitors each year), which is located next to the airport (see figure 1).

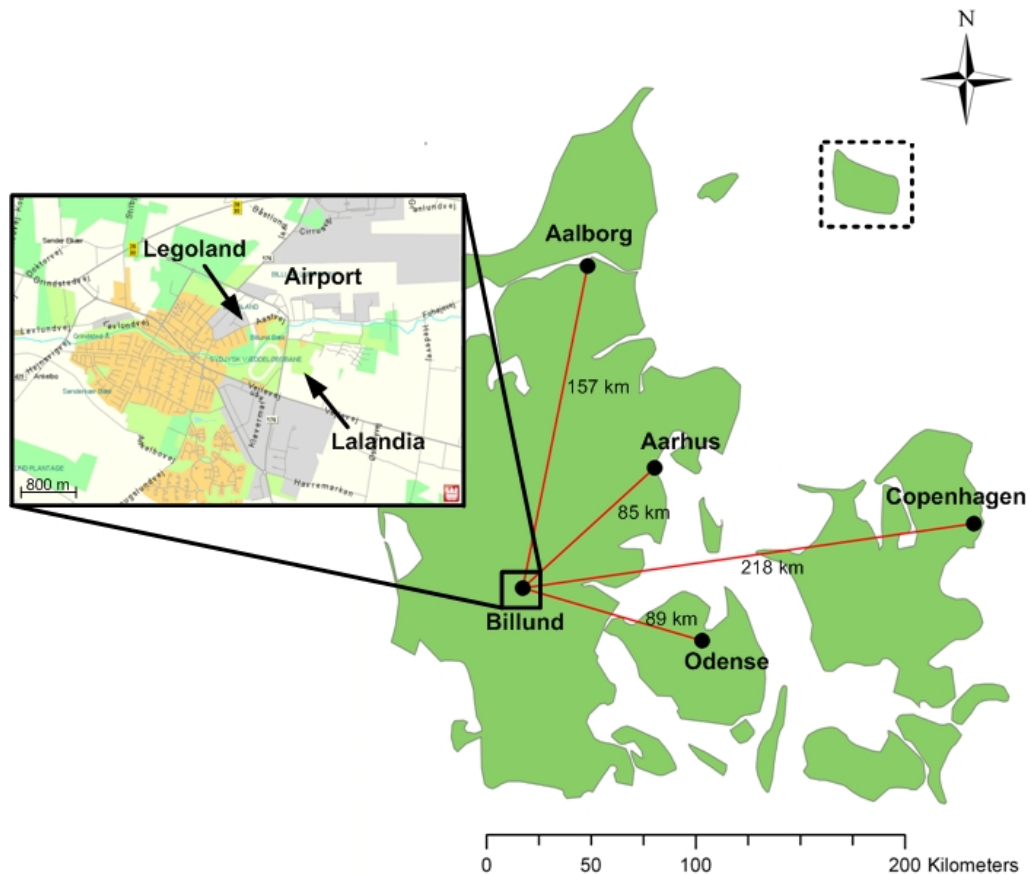


Figure 1: Billund (Lassen et al., 2009: 889)

A key element in the development of the new strategy is the wish of the local business association to get more value out of the transit passengers and day trip tourists as well as to attract new visitors to the area (Lassen et al., 2009). Creating a new urban strategy became serious in 2006 when a number of external actors wanted to invest in a new centre of entertainment for families, and Merlin Entertainments Group, the owner of Legoland, had bought the amusement park Legoland. This meant that the discussions and ideas were now transformed into real action. “Together this meant that some activities which gave trust in the economic development had started. In Legoland, a number of new activities had started, and the airport believed that new, and more, destinations could be established. All the different activities meant that the vision of making the region an experience municipality, or an experience region, was suddenly visible to everybody. There was suddenly some money, machines, and some land behind the ideas. It helped making the whole thing move” (Manager of Billund business association, research interview, 2007).

Billund municipality made the necessary plans and reservation of areas which meant that it was actually possible to accomplish the project. Through a variety of both local/regional, national and global players and forces, the municipality has facilitated a spatial transformation towards reshaping the area into a destination of fun, play and experience (Lassen et al., 2009). And as we will show in the following, this transformation is closely linked to the local airport and low-price air flights.

3. From mass tourism to individual planning of experience

Currently, tourism is one of the fastest growing sectors in Billund (Visit Billund, 2010). The goal of the municipality of Billund is to attract more than 5 million tourists a year over the next 10 years and to function as a port to tourist sites and attractions in Western Denmark (Billund, 2008: 16). It is expected that this can be achieved by attracting more tourist to Lalandia, which opened its doors in 2009. Lalandia counts 750 holiday houses, but the number of houses is expected to increase until 1.500 houses. Furthermore, it is expected to open two or three new major attractions in the area (Billund, 2008: 7). The airport does also play a key role in achieving the goal of attracting more tourists to the area. In the first place, this is done by attracting low-cost air companies. In the second place, as mentioned shortly before, to make sure that Billund not only is a place of departure, but a destination as well. Recently the number of international route traffic flights has increased significantly (Billund airport, 2010b), see figure 2.

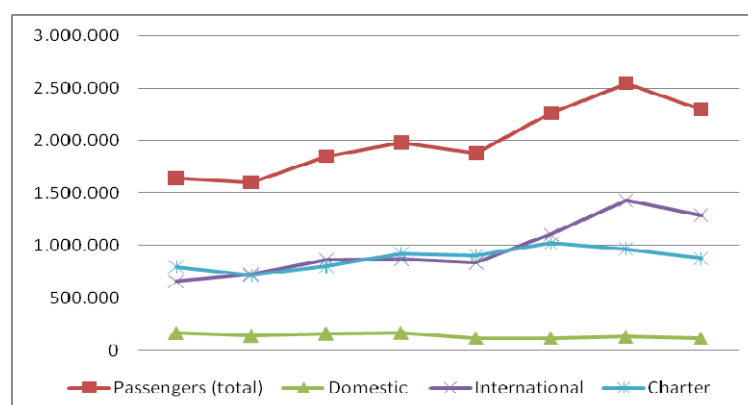


Figure 2: Development in number of passengers in Billund airport 2002-2009 (based on Billund airport, 2010b)

Since the opening of the new passenger terminal in 2002, the airport has had capacity for 3.5 million passengers a year. In the last couple of years, a number of European cities have been connected by direct flights to Billund, and the increased supply of international routes

provides an important material contribution to the creation of Billund as an experience destination. Obviously, there exists a new type of, what we will call, “experience travellers”. Experience travellers can be attracted due to the increased international access to the area of Billund. “One of the things that we have to be very aware of is that we have a very large group of tourists who plan with one day’s notice. They say: We have a weekend off; how should we spend it? We could go to Billund, it costs 2 Euro plus airport tax with Ryanair to Billund Airport. Here we can see that more Spaniards are flown in to Billund airport than to Copenhagen Airport. Ryanair comes from Spain several times a week and on these flights there are in fact more Spaniards than Danes” (Manager of Billund Business Association, research interview, 2007). Low-price tickets and internet marketing in various languages are orientated towards such new kind of travellers (Lassen et al., 2009). These new type of experience travellers can be defined as people coming from European cities (Malaga, Madrid, Barcelona etc.), who, contrary to traditional mass tourists, do not make plans before leaving their homes, but instead they plan while on the trip (see Urry 1990). This type of traveller discovers Billund on the Internet as a possible place for a ‘weekend of experience and play’, and only when they arrive, they will book a hotel in the area of the airport from where they will plan the rest of the journey. The municipality and other local actors are trying to brand Billund, i.a. on the Internet, as a city of experience; an attempt to attract these new “experience travellers”.

4. Aeromobility, urban development and sustainable development

In this section, we discuss the case of Billund in the light of the notion of urban/regional growth strategies in an experience destination, sustainable development and aeromobility. Lassen et al. (2009) argue that Billund has tried to change its image from anonymity into a location of experience connected to the global tourism flows. The formulation of the experience strategy and a number of the urban initiatives taken in Billund are based on the assumption of the “experience travellers”. Local investments, policies and planning have to a large extent been directed towards the creation of an experience dimension, which contributes to providing the airlines and the international travellers a concrete purpose for flying to the city. Without the experience dimension, it would not be an obvious choice to travel to a place which they never heard about before, and which does not appear to have any special or unique tourist experiences, but rather appears as trivial and anonymous for visitors (Lassen et al., 2009). The case of Billund shows that increased access to air travelling, at relatively low prices, can create a new experience destination. More importantly, the case of Billund shows the complex impact of the increasing prevalence of low price air travel on the spatial, social and economic development of the city, and at the

same time, how the spatial, social and economic reorganization contributes to the prevalence of air traffic, airports and air spaces. The latter is also stressed by Urry (1995, 2007). Urry (1995: 142) states that especially the travel industry is an organizer of the modern experience. "The aviation industry can be seen as a tightly connected system of places, private corporations and state actors, interrelated with almost all other sectors of the economy" (Urry, 2007: 148). In Billund the focus is to create urban initiatives that can attract international visitors through investments in old as well as new centers of experiences combined with international marketing on the Internet, and at the same time, the local airport is developed both as a low price airport and as a network airport. Billund illustrates how different scales and mobility practices are involved and combined in the local urban spatial strategies and policies (Lassen et al., 2009).

The transformation of urban spaces, with a focus on attracting more global tourists and visitors seems, from an environmental point of view, problematic on different levels. Attracting more and more tourists to an experience destination with airplanes is in conflict with goals to achieve environmental sustainability. Environmental impacts from air transport generally speaking can be summarized to effects from greenhouse gases (CO₂ amongst others), hydro-carbons (HCs), oxides of nitrogen (NO_x), particulate matter (PM) and noise pollution. Especially, the greenhouse effect is much more serious in the higher part of the stratosphere. As pointed out in the introduction various scientists estimate the total contribution of aviation emissions to climate change to be at least two times as high as ground level emissions. An airplane trip from, for example Billund to Alicante (Spain) and back, contributes 850 kg CO₂ per passenger (Carbon Footprint Calculator, 2010). For comparison, an average Danish citizen's total annual CO₂ emission was in 2006 10.000 kg without international air travel included (Nielsen, 2001). A tourist consumes about 90 per cent of the primary energy required for a holiday for transportation during their outgoing and returning journey; and a significant part (42%) of all international tourist arrivals are made by airplanes (Gössling & Peeters, 2007; Leitschuh-Fecht, 1998).

Compared with other means of transportation, air traffic is globally the least regulated (see Lassen, 2005). Airline fuel has been exempt from tax since 1944 under the rules of the International Civil Aviation Organization (ICAO) (Lassen et. al., 2006). Emissions from international flights are not included in the Kyoto protocol on greenhouse gases because of difficulties in allocating emissions between countries. Moreover, the European Commission has shown that the external costs of airplanes measured in EUR/1000-personkilometres are

more than the double of the external costs trains (Europa Kommissionen, 2001: 116). In Denmark, the building of a new airport is very much a local matter, which is not particularly governed by any coherent national plans for the future development of airports and aeromobility.

The transformation of urban spaces, with a focus on attracting more global tourists and visitors is not only problematic at the global level as just described. At the local level, it is also problematic, from an environmental point of view, to attract more global tourists and visitors. By their nature, airports require large land areas and create zones that are either hostile to wildlife (paved and built) or are ecological monocultures (mown grassland) (Graham et al., 2008: 248). Handling, processing and transport of waste generated at airports will require additional infrastructure. This entire infrastructure on and around airports might hamper biodiversity in the area. Other airport-related environmental issues include contaminated land, ground- and surface water at airports arising from airplane fuels and aircraft de-icing operations (Upham et al., 2003) as well as resource issues (water and energy). Some European airport operators have expressed concerns that they will be unable to ensure adequate and secure supplies of energy and water in the future (Graham et al., 2008: 249). With an increased number of travellers, these problems will increase as well.

The above mentioned local environmental impacts are also the main environmental impacts as identified by Billund airport in their annual environmental reports. Actually, Billund airport only mentions local environmental impacts in their environmental reports. Focus is exclusively on reduction of environmental impacts at company level, i.e. the airport itself. With regard to the reduction of air polluting substances, the calculations do not encompass contributions from planes. Seen in the light of the global climate problems, it almost seems ironic that Billund Airport has received a diploma three times for its environmental reports (1999, 2002 and 2004) and received an environmental award in 2001 from the Environmental Network South (Miljønetværk Syd), a regional cooperation project between private companies and public authorities on environmental matters (Miljønetværk Syd, 2010).

At the local level, local authorities, in cooperation with citizens, have the responsibility to work with sustainable development (Local Agenda 21). Making Billund an “experience destination” enhances the ability for *economic* sustainability; i.e. it generates employment and growth in the area and compensates for the loss of blue color jobs in the last decades

(see also section 2). The question is, however, to what extent the development of Billund as an experience destination is at the expense of *environmental* sustainability?

It will be a huge challenge for the municipality Billund to decouple the tension between aeromobility, tourism and the environment at the local level. In their “Development plan for Billund 2008-2018”, the municipality states that “both as an authority and as a business the municipality of Billund is aware of its responsibility to promote sustainability in relation to climate and the environment” (Billund, 2008: 34). In the Development plan various examples are given of how the municipality promotes awareness of the environment (e.g. waste to energy projects, profile a significant and respectful nature management, promote environmental friendly solutions aimed at citizens) and climate impacts (e.g. afforestation, influence developments into a more CO₂ friendly direction for the sake of the climate, for example by increasing the number of windmills). The municipality argues also how some of these projects can be linked to their “experience strategy”; i.e. afforestation creates beautiful landscapes with plenty of possibilities for experiences for both locals and tourists and nature areas do have a high experience value as well. However, with these projects the municipality will not be able to save on CO₂ emissions that can compensate for the CO₂ emissions emitted by airplanes taking off and landing at Billund airport; neither CO₂ emissions emitted from all “experience activities” in the area. In that sense, there is a discrepancy between the municipality’s “experience strategy” (chapter 4 of the Development plan) and the environmental and climate strategy of the municipality (chapter 9 of the Development plan).

As mentioned in section 3, the Internet is used actively to brand Billund as a city of experience. However, neither Legoland nor Lalandia profile their *environmental* ambitions on their homepage. Nowadays, several companies and public authorities, including companies creating experiences like football clubs and golf tournaments, have a “climate neutral” strategy; either they are 100% climate neutral or want to become climate neutral in the near future. Football club PSV Eindhoven (the Netherlands) for example, became 100% climate neutral in 2008. The KLM Open golf tournament to be played in Hilversum (the Netherlands) in September 2010 is climate neutral as well. 50,000 visitors are expected to visit the KLM Open golf tournament. The tournament organizers still believe the tournament can be conducted “climate neutral”. This goal will be achieved by many small steps, i.e. biofuel in the mowers, biodegradable coffee cups and “green transport” on the golf course (e.g. in the buggy). Despite all these small steps, the tournament will cause additional CO₂ emissions, since many of the players will arrive by plane to the Netherlands. These extra CO₂ emissions

are offset by a donation to a sustainable project. An independent agency calculates how much this should be (NOS, Dutch television news, 29 August 2010).

The main actors that are the driving force behind the development of Billund into an experience destination (i.e. Legoland, Lalandia Billund, Billund airport and the municipality) could also offset the CO₂ emissions of their experience strategy by investing in “carbon offset projects” (e.g. energy efficient stoves in Africa, a wind power project in India or a hydro power project in China). At the local level they could, like in the example from the KLM Open golf tournament, find sustainable projects as well; e.g. the approximately 750 holiday houses to be build in Lalandia could be eco-houses, they could make use of green transport (e.g. by the use of electric scooters, solar powered scooters, transport in biogas busses and so on), which will have an experience value as well. Finally, Legoland and Lalandia could choose to give discount on entrée tickets, for those visitors travelling by train or bus to the attraction. In this way, they could be part of a new trend to be climate neutral, which could help them branding the city as being green as well. And since, see also above, a tourist consumes 90% of the primary energy required for a holiday for transportation during their outgoing and returning journey, a lot could be achieved; both at the local and the global level.

5. Conclusion and perspectives

The overall theme of this paper is to show how aeromobility is used as a core element in the development of new urban strategies of experience and transformation of urban spaces. We have discussed different dilemmas with this strategy for the environment, both at the local and global level. We have used the city of Billund (Denmark) as an example.

Without the experience dimension, Billund would not be an obvious choice to travel to. But our case study shows that increased access to air travelling, at relatively low prices, can create a new experience destination. The transformation of urban spaces, with a focus on attracting more global tourists and visitors seems, from an environmental point of view, problematic on different levels. The threat to the global climate from airplane emissions has become more serious than the threat from emissions of vehicles, which travel at the same distances at surface level. Tourism accounts for more than 60% of air travel and is therefore responsible for an important share of air emissions. On the local level, it seems problematic to base experience economy on increasing flights, because of the serious environmental impacts connected to air transport. A city that wants to develop a local experience economy based on increasing aeromobility has to consider whether this is compatible with

environmental responsibility and being 'a green city' that lives up to its Local Agenda 21 obligations.

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ⁱ The term “aeromobility” relates to process of air traffic as a parallel to automobility (Urry 2000:59). The term aeromobility is inspired by Høyer (2000:193). Furthermore aeromobility refers in this paper to both actual air trips of individual and their capacity to carry out air based mobility (Kaufmann 2002:1). This means that to understand the production of air traffic one may not only study peoples actual movement, but also their potential to carry out different types of mobilities and in relation to this understand which mechanisms that transform/not-transform potential mobility into actual mobility.